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CDR WEEKLY



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First year of mandatory MRSA bacteraemia surveillance scheme

The results of the first year of the Department of Health's mandatory MRSA bacteraemia surveillance scheme are published in this issue of CDR Weekly. All 187 NHS acute Trusts in England participated in this surveillance, which started in April 2001. The MRSA bacteraemia rate varied from 0 to 0.66 per 1000 bed-days, with an overall rate of 0.17 per 1000 bed-days. Specialist acute Trusts had the highest rates and single specialty Trusts the lowest. Rates also varied by region: London had the highest MRSA bacteraemia rate and the North West the lowest.

This report builds on the previous reports of the surveillance scheme. It develops them further through the use of control charts to display the results of the category analyses more clearly, quarter-on-quarter analysis of individual Trusts' data to detect significant linear change in their MRSA rate over time, and a review of the activities that have been undertaken at the regional level.

As noted in previous reports, it is important to remember that higher rates do not necessarily equate with infection control deficits. These results should serve as the basis for further local investigations, as is currently underway in the regions.

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Consultation starts on new Health Protection Agency

The Department of Health and the Wales Office have published a consultation paper that invites comments on the proposals to establish the Health Protection Agency (HPA). Creation of the Agency was a key recommendation in the Chief Medical Officer's infectious disease strategy *Getting ahead of the curve*, published in January (1).

The consultation is about what measures might be included in a Regulatory Reform Order (RRO) under the *Regulatory Reform Act 2001*, and explains the HPA might be established as an executive non-departmental public body or a Special Health Authority (SHA).

The proposed functions of this new body, described separately for England and Wales, are:

- Surveillance of infectious diseases and chemical and radiation hazards

- Support for the provision of services at local level
- Provision of advice at a national level
- Provision or commissioning of certain services at a national or regional level.

The transfers of the regionally-based laboratories from the Public Health laboratory Service (PHLS) to the NHS would not be affected by the RRO and therefore outside the remit of the document:

Proposed to transfer to the new HPA are the functions of

- the PHLS Communicable Disease Surveillance Centre (but excluding those in Wales)
- most reference and specialist laboratories such as those in the PHLS Central Public Health Laboratory
- the current National Radiological Protection Board (but not its responsibilities in relation to Scotland)
- the Centre for Applied Microbiology and Research at Porton Down
- consultants in communicable disease control and their staff, currently based mostly in primary care trusts
- regional health emergency planning advisors
- the National Focus for Chemical Incidents (NFCI), the Regional Specialist Provider Units, and the National Poisons Information Service

In Wales, it is proposed that there should be separate arrangements for field services, to be carried out by the new National Public Health Service - Wales (NPHS) which will incorporate:

- Health Authority public health departments
- PHLS in Wales (including all peripheral laboratories and CDSC Wales)

The HPA would also be responsible for providing/commissioning food, water and environmental microbiology, and specialist and reference microbiology. It is also proposed that the HPA should be involved in aspects of research and development in the health protection field

There is an initial regulatory impact assessment of the proposals. A fuller version and a draft of the RRO will be prepared in the light of the responses to the consultation.

The consultation paper is available on the internet at:

<http://www.doh.gov.uk/consultations/live.htm>

<http://www.cabinet-office.gov.uk/regulation/act/condocs.htm> and

<http://www.ukonline.gov.uk>

Copies are also available by post/telephone from Department of Health Publications, PO Box 777, London SE1 6XH; tel: 08701 555 455; fax: 01623 724524; email: doh@prolog.uk.com. Responses are invited by 16 September 2002.

1. Chief Medical Officer. *Getting ahead of the curve: a strategy for combating infectious diseases*. London: Department of Health, 2002. Available at <www.doh.gov.uk/cmo/idstrategy2002.pdf>

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HIV awareness campaign in Mansfield

A major HIV awareness campaign is being launched in the Mansfield area. The latest HIV figures for the

area show a small, but significant, increase in the number of HIV infected people – six cases have been diagnosed since the beginning of January 2002, compared with an average of three or four cases a year in the preceding five years. The cases seem to be linked with unprotected heterosexual sex. Additional sessions have been arranged at the local genitourinary medicine clinics.

Nationally, new reports of HIV are continuing to rise. Over the last two years HIV has risen by 10% year on year, with 4100 new reports of HIV in 2001. There are now over 33,000 people in the United Kingdom living with HIV, up to one third of whom are not aware of their infection.

Useful links

CDR Weekly – most recent insert on HIV/AIDS specifically dealing with heterosexually acquired cases was on 26 April 2001. www.phls.co.uk/publications/CDR%20weekly/archive/hivarchive.htm

HIV Quarterly tables see especially table 7a – HIV infections acquired through sex between men and women by year of HIV diagnosis. www.phls.co.uk/factor/HIV/HIVquarterly.htm

SOPHID (annual prevalence survey) See table 3 especially. www.phls.co.uk/facts/HIV/Sophid2000.pdf

HIV/AIDS in the UK – an epidemiological review 2000. Pages 13-20 give an update on heterosexual cases within the UK (available also on website) www.phls.co.uk/facts/HIV/HIVreport.pdf

STI figures – these are available in the last annual report on STIs (published autumn 2001) also available on the website. www.phls.co.uk/facts/STI/data_tables/sti_data.htm See especially table 3 (increasing gonorrhoea, chlamydia and syphilis) and table 7 – regional figures.

Behavioural data Some of the behavioural data are summarised in the prevention indicators in the unlinked anonymous report (www.phls.co.uk/facts/HIV/UAPMP.htm) see especially table 4 which is page 18 in the hard copy and page 24/25 on the web copy)

NATSAL Sex Survey – the basic message from this is that sexual risk taking has increased considerably since the 1990 survey (*Lancet* 2001; **358**: 1835-42,1843-50).

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Suspected outbreak of acute haemorrhagic fever syndrome in the Republic of Congo

On 12 June 2002, the Ministry of Health of the Republic of Congo reported a new outbreak of suspected acute haemorrhagic fever syndrome (1). It has affected the north west of the country in Mbomo district, close to the border of Gabon. There have been six cases, including five deaths, reported since 17 May 2002.

It is reported that the first two cases occurred in hunters who handled a dead chimpanzee in a forest south of Oloba on the Gabonese border. A team from the Congolese Ministry of Health and World Health Organization (WHO) are on site to investigate the cases and collect samples for verification. Ecosystèmes Forestiers d'Afrique Centrale (ECOFAC) has sent a team to investigate the deaths of wild animals in the affected area.

The last haemorrhagic fever outbreak in this area of the Republic of Congo, occurred between December 2001 and April 2002 and was confirmed as Ebola virus. This outbreak, which also affected the Ogooué-Inwindo province of Gabon, involved 57 cases (including 43 deaths) in the Republic of Congo and 65 cases (including 53 deaths) in Gabon (2). The WHO officially declared that the outbreak was over in Gabon, by the WHO in May, with the last case being recorded on 19 March 2002. So far, there are no reports of haemorrhagic fever in this area of Gabon.

1. Suspected acute haemorrhagic fever syndrome in the Republic of Congo. Reported by Anne-Claire de Benoist. *Eurosurveillance Weekly*

2. WHO. Ebola haemorrhagic fever in Gabon/ The Republic of Congo – update 22. Communicable Disease Surveillance and Response [online] Geneva: World Health Organization, 2002 [cited 19 June 2002]. Available at <<http://www.who.int/disease-outbreak-news/n2002/april/9april2002.html>>

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The first year of the Department of Health's mandatory MRSA bacteraemia surveillance scheme in acute NHS Trusts in England: April 2001 - March 2002

Key points

- These are the results of the first year of the mandatory MRSA bacteraemia surveillance scheme.
- 187 acute Trusts participated in the MRSA bacteraemia surveillance between April 2001 and March 2002.
- MRSA bacteraemia rates varied according to the type of Trust, with highest rates being seen in specialist Trusts, followed by general acute Trusts, and lastly by single specialty Trusts.
- MRSA rates for each Trust also varied by region: London had the highest MRSA bacteraemia rate and the North West region the lowest. In general, Trusts in the south and east of England tended to have higher MRSA rates than those in the north and west.
- Twenty-three Trusts showed significant linear changes in their MRSA rates over the first year.
- Various activities have been undertaken at the regional level in response to the publication of MRSA bacteraemia rates in acute Trusts in England for the first six months of the scheme.

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The first year of the Department of Health's mandatory MRSA bacteraemia surveillance scheme in acute NHS Trusts in England: April 2001 – March 2002

Key points

- These are the results of the first year of the mandatory MRSA bacteraemia surveillance scheme.
- 187 acute Trusts participated in the MRSA bacteraemia surveillance between April 2001 and March 2002.
- MRSA bacteraemia rates varied according to the type of Trust, with highest rates being seen in specialist Trusts, followed by general acute Trusts, and lastly by single specialty Trusts.
- MRSA rates for each Trust also varied by region: London had the highest MRSA bacteraemia rate and the North West region the lowest. In general, Trusts in the south and east of England tended to have higher MRSA rates than those in the north and west.
- Twenty-three Trusts showed significant linear changes in their MRSA rates over the first year.
- Various activities have been undertaken at the regional level in response to the publication of MRSA bacteraemia rates in acute Trusts in England for the first six months of the scheme.

Introduction

This report features the results from the first year of the Department of Health's mandatory MRSA bacteraemia surveillance scheme for all acute NHS Trusts in England, covering the time period April 2001 to March 2002. Earlier reports have described the results for the first six¹ and nine² months of the scheme.

Methods, data collection and analyses

Data were collected quarterly and analysed to provide an MRSA rate for each Trust per 1000 occupied bed-days. As before¹, KH03 data on overnight bed occupancy were used to form the denominators for rate calculations. Where there have been significant changes in Trust activity since the publication of the last KH03 data, Trusts have amended their KH03 figure in consultation with their regional office. In addition, the categorisation of a few Trusts has changed following discussion with the Regional Office. For the regional analyses, the regional areas used were those that were extant during the time period of the scheme, *ie* before the changes introduced in April 2002.

Control charts^{3,4} were used (figures 1-3) to display how Trusts' rates compared to an overall rate for each Trust category (general acute, specialist, and single specialty). Statistical software* was used to plot Trust data and confidence limits and to evaluate linear trends over time (using Poisson regression techniques).

Control charts have a visual advantage over confidence interval plots in that exceptions can be more easily discerned. The number of MRSA bacteraemias experienced over the year in each Trust was plotted against the number of occupied bed-days as an ordinary scatter-plot. The pooled MRSA rate for each Trust category was then calculated (the total number of MRSA bacteraemias divided by the total number of bed-days) and used to further calculate the expected number of

MRSA bacteraemias for the range of Trusts' occupied bed-days. This is shown as a central solid blue line on each chart. These expected MRSA numbers per occupied bed-day were used to calculate 95% control limits. There was wide variation in MRSA rates beyond that which would be expected for a Poisson distribution, suggesting that other factors are influencing the variation. Consequently, the resulting estimates of the standard deviation were scaled by the square root of the deviance divided by the residual degrees of freedom from a null Poisson regression model, to take into account these non-Poisson effects.

The inflated control limits were superimposed on each chart as dashed blue lines. Thus any Trust that lies between these lines falls within the expected range of MRSA bacteraemias per occupied bed-days for that category. Variation within these limits is termed 'common cause' variation, which may occur by chance, whereas MRSA counts that fall either above or below the lines are experiencing 'special cause' variation, which should form the basis of further investigation⁵.

As in previous reports, the data should be interpreted with care as there are various factors that influence a Trust's rate and its relative position. Higher rates do not necessarily indicate an infection control problem in particular Trusts. They should be used as the basis for further local investigations. The factors that may influence Trust rates were detailed in the first report¹ and have been included here as an appendix. Readers are also directed to the first report for a glossary of terms.

Main findings

One hundred and eighty-seven Trusts reported MRSA data for the first year of the mandatory scheme. Two Trusts reported their results jointly. The MRSA bacteraemia rate for acute Trusts in England varied from 0 to 0.66 per 1000 bed-days, with an overall rate of 0.17 per 1000 bed-days.

MRSA bacteraemia rates varied according to region (figure 4), with rates tending to be higher in the south and east, and lower in the north. The regional rates and the order

* Stata statistical software: release 7. College Station, Texas: Stata Corporation, 2001

Figure 1 Number of MRSA bacteraemias in specialist acute NHS Trusts by bed-days, England: April 2001 to March 2002

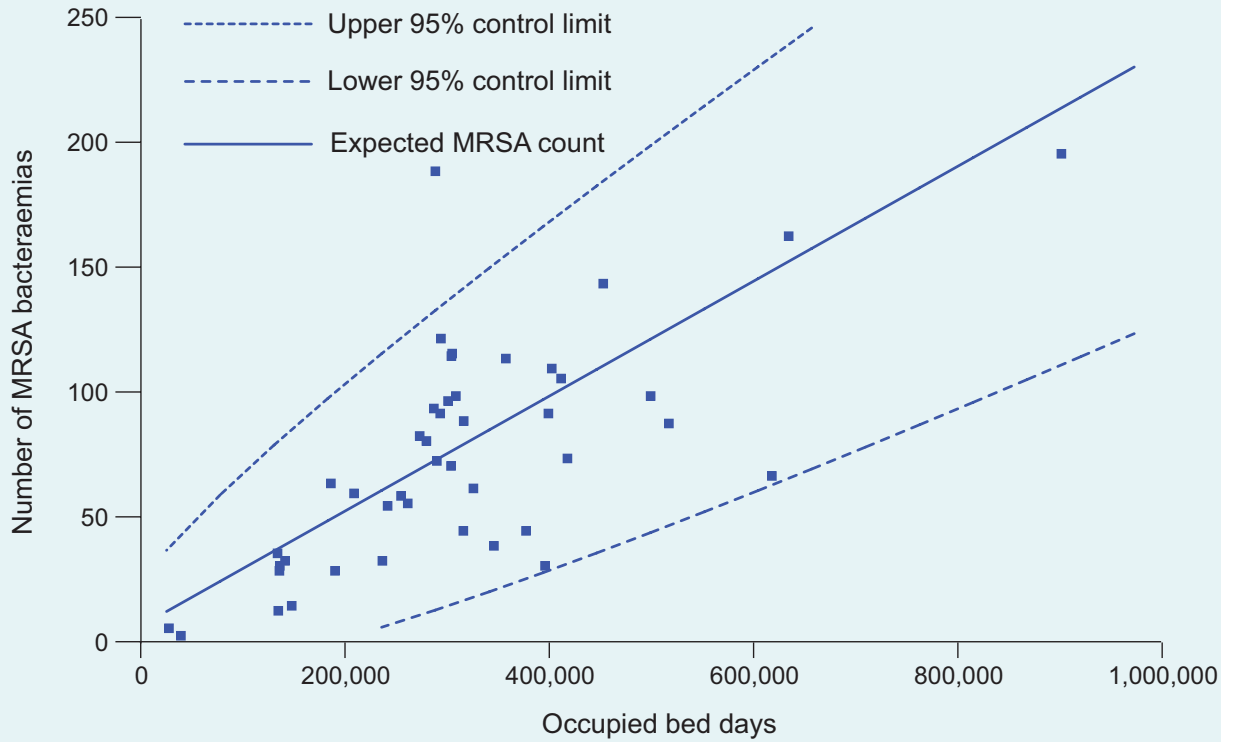


Figure 2 Number of MRSA bacteraemias in general acute NHS Trusts by bed-days, England: April 2001 to March 2002

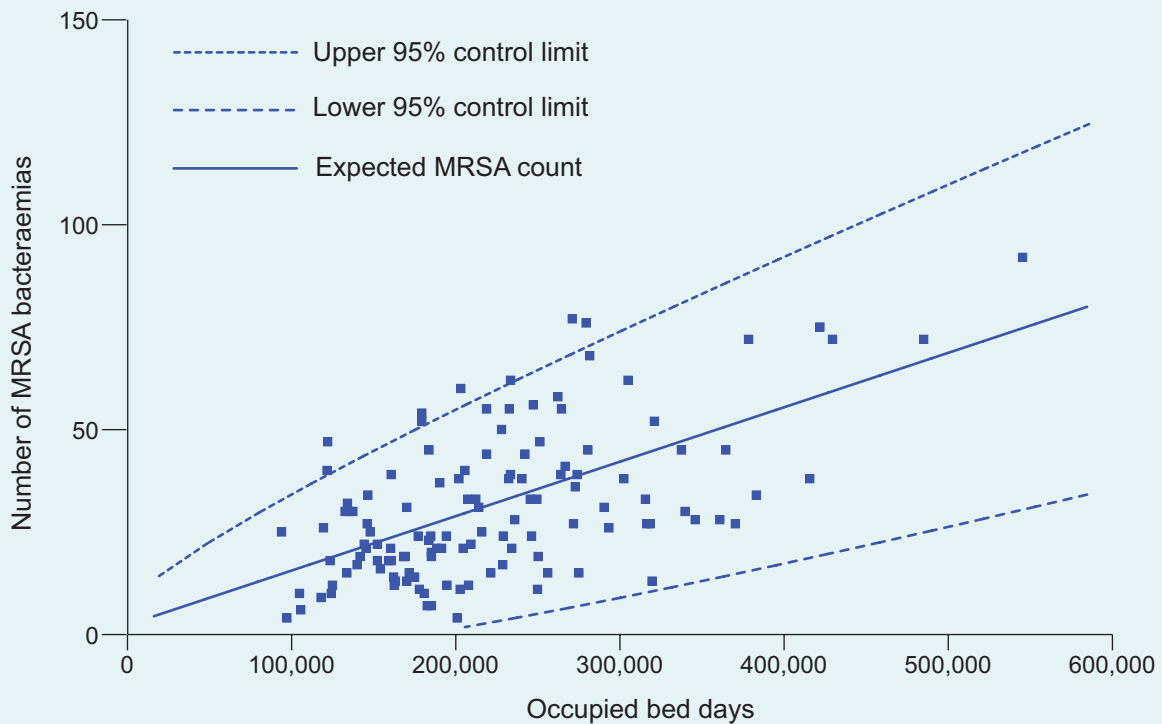


Table 1 MRSA bacteraemia rates by Trust category – specialist Trusts: April 2001 to March 2002

Trust Name	MRSA per 1000 bed-days*	Number of MRSA bacteraemias	National ranking according to Trust category
Addenbrooke's NHS Trust	0.27	110	16
Ashford & St Peter's Hospitals NHS Trust	0.29	60	14
Barts & the London NHS Trust	0.19	62	32
Brighton Health Care NHS Trust	0.23	55	26
Central Manchester & Manchester Children's University NHS Trust	0.11	39	39
Chelsea & Westminster Healthcare NHS Trust	0.27	36	17
East Kent Hospitals NHS Trust	0.20	99	31
Eastbourne Hospitals NHS Trust	0.15	29	35
Guy's & St. Thomas' NHS Trust	0.32	114	9
Hammersmith Hospitals NHS Trust	0.28	89	15
Hull & East Yorkshire Hospitals NHS Trust	0.26	106	18
King's College Hospital NHS Trust	0.31	92	11
Leeds Teaching Hospitals NHS Trust	0.22	196	27
Maidstone & Tunbridge Wells NHS Trust	0.21	56	29
Medway NHS Trust/Thames Gateway NHS Trust†	0.08	31	43
Mid Sussex NHS Trust	0.23	31	25
Newcastle Upon Tyne Hospitals NHS Trust	0.17	88	34
North Bristol NHS Trust	0.32	144	10
North Hampshire Hospitals NHS Trust	0.21	29	30
North Staffordshire Hospital NHS Trust	0.30	83	12
North West London Hospitals NHS Trust	0.23	59	23
Nottingham City Hospital NHS Trust	0.25	73	20
Oxford Radcliffe Hospitals NHS Trust	0.23	92	24
Plymouth Hospitals NHS Trust	0.32	99	8
Portsmouth Hospitals NHS Trust	0.32	97	7
Queen Victoria Hospital NHS Trust	0.22	6	28
Queen's Medical Centre, Nottingham University Hospital NHS Trust	0.23	71	21
Royal Berkshire & Battle Hospitals NHS Trust	0.14	33	37
Royal Free Hampstead NHS Trust	0.41	122	2
Royal Surrey County Hospital NHS Trust	0.10	13	42
Sheffield Children's Hospital NHS Trust	0.08	3	44
Sheffield Teaching Hospitals NHS Trust	0.11	67	40
South Tees Hospitals NHS Trust	0.38	116	3
Southampton University Hospitals NHS Trust	0.12	45	38
Southern Derbyshire Acute Hospitals NHS Trust	0.14	45	36
St. George's Healthcare NHS Trust	0.38	115	4
St. Mary's NHS Trust	0.34	64	5
Stoke Mandeville Hospital NHS Trust	0.10	15	41
The Royal West Sussex NHS Trust	0.23	33	22
United Bristol Healthcare NHS Trust	0.29	81	13
University College London Hospitals NHS Trust	0.33	94	6
University Hospital Birmingham NHS Trust	0.66	189	1
University Hospitals Coventry & Warwickshire NHS Trust	0.18	74	33
University Hospitals of Leicester NHS Trust	0.26	163	19

* based on average daily number of occupied beds (all wards) in 2000/1

† Medway NHS Trust/Thames Gateway NHS Trust are two trusts

of the regions after the first year of the scheme were similar to those after six months: as before, the North West region had the lowest rate (0.12 per 1000 bed-days), and London the highest (0.23 per 100 bed-days). Unlike the results at six months, however, the confidence intervals for both these regions did not overlap with those for any other region. Tables 1-8 and figures 1-8 in appendix A show the rates by trust for each region

The MRSA bacteraemia rates also varied according to Trusts' categorisation: specialist Trusts tended to have higher rates and single specialty Trusts lower rates, with general acute Trusts falling in the middle. There were 45 specialist

Trusts (table 1), with MRSA bacteraemia rates ranging from 0.08 to 0.66 per 1000 bed-days. MRSA bacteraemia rates in general acute Trusts (124 Trusts in total) ranged from 0.02 to 0.39 per 1000 occupied bed-days (table 2). The 18 single specialty Trusts (table 3) had rates ranging from 0 to 0.23 per 1000 bed-days. Three Trusts (all single specialty) reported no MRSA bacteraemias between April 2001 and March 2002.

Trusts' results within each category are shown in control charts, to show where individual Trusts fall in relation to the overall rate for that category. No Trusts in any category fell below the control limits. Among the specialist Trusts (figure 1), one Trusts had MRSA bacteraemia rates that

Table 2 MRSA bacteraemia rates by Trust category – general acute Trusts: April 2001 to March 2002

Trust Name	MRSA per 1000 bed-days*	Number of MRSA bacteraemias	National ranking according to Trust category
Aintree Hospitals NHS Trust	0.09	34	92
Airedale NHS Trust	0.06	11	111
Barking, Havering & Redbridge Hospitals NHS Trust	0.17	92	37
Barnet & Chase Farm Hospitals NHS Trust	0.20	62	25
Barnsley District General Hospital NHS Trust	0.15	22	47
Basildon & Thurrock General Hospitals NHS Trust	0.30	60	4
Bedford Hospitals NHS Trust	0.14	21	52
Birmingham Heartlands & Solihull (Teaching) NHS Trust	0.18	75	35
Blackburn, Hyndburn & Ribble Valley Health Care NHS Trust	0.13	33	56
Blackpool Victoria Hospital NHS Trust	0.20	44	26
Bolton Hospitals NHS Trust	0.13	38	63
Bradford Hospitals NHS Trust	0.16	45	42
Bromley Hospitals NHS Trust	0.19	37	28
Burnley Health Care NHS Trust	0.10	24	87
Burton Hospitals NHS Trust	0.23	30	18
Bury Health Care NHS Trust	0.06	10	116
Calderdale & Huddersfield NHS Trust	0.09	38	90
Chesterfield & North Derbyshire Royal Hospital NHS Trust	0.13	21	61
City Hospital NHS Trust	0.25	55	10
City Hospitals Sunderland NHS Trust	0.15	41	46
Countess of Chester Hospital NHS Trust	0.23	34	16
Dartford & Gravesham NHS Trust	0.22	30	22
Dewsbury Health Care NHS Trust	0.11	18	75
Doncaster & Bassetlaw Hospitals NHS Trust	0.08	27	98
Dudley Group of Hospitals NHS Trust	0.10	27	86
Ealing Hospital NHS Trust	0.33	40	2
East & North Hertfordshire NHS Trust	0.19	72	29
East Cheshire NHS Trust	0.07	12	108
East Gloucestershire NHS Trust	0.05	15	117
East Somerset NHS Trust	0.15	18	50
Epsom & St. Helier NHS Trust	0.24	68	13
Essex Rivers Healthcare NHS Trust	0.10	24	81
Frimley Park Hospital NHS Trust	0.29	52	5
Gateshead Health NHS Trust	0.04	11	119
George Eliot Hospital NHS Trust	0.11	15	74
Gloucestershire Royal NHS Trust	0.14	31	51
Good Hope Hospital NHS Trust	0.11	19	73
Harrogate Health Care NHS Trust	0.08	13	102
Hastings & Rother NHS Trust	0.19	38	30
Heatherwood & Wexham Park Hospitals NHS Trust	0.19	47	31
Hereford Hospitals NHS Trust	0.06	6	115
Hillingdon Hospital NHS Trust	0.16	33	45
Hinchingbrooke Healthcare NHS Trust	0.10	12	88
Homerton Hospital NHS Trust	0.09	14	96
Ipswich Hospital NHS Trust	0.22	50	21
Isle of Wight Healthcare NHS Trust	0.12	17	67
James Paget Healthcare NHS Trust	0.24	39	12
Kettering General Hospital NHS Trust	0.10	16	83
Kings Lynn & Wisbech Hospitals NHS Trust	0.11	21	77
Kingston Hospital NHS Trust	0.13	23	64
Lewisham Hospital NHS Trust	0.30	54	3
Luton & Dunstable Hospital NHS Trust	0.14	22	53
Mayday Healthcare NHS Trust	0.17	39	39
Mid Cheshire Hospitals NHS Trust	0.11	20	78
Mid Essex Hospital Services NHS Trust	0.18	44	34
Mid Staffordshire General Hospitals NHS Trust	0.08	14	101
Milton Keynes General Hospital NHS Trust	0.08	9	105
Morecambe Bay Hospitals NHS Trust	0.10	33	82
Newham Healthcare NHS Trust	0.17	25	36
Norfolk & Norwich University Hospital NHS Trust	0.27	76	7
North Cheshire Hospitals NHS Trust	0.15	39	49
North Cumbria Acute Hospitals NHS Trust	0.09	26	93
North Durham Health Care NHS Trust	0.10	19	85
North Manchester Healthcare NHS Trust	0.23	56	17

Table 2 (cont) MRSA bacteraemia rates by Trust category – general acute Trusts: April 2001 to March 2002

North Middlesex Hospital NHS Trust	0.39	47	1
North Tees & Hartlepool NHS Trust	0.09	21	91
Northallerton Health Services NHS Trust	0.04	4	120
Northampton General Hospital NHS Trust	0.14	24	55
Northern Devon Healthcare NHS Trust	0.08	13	104
Northern Lincolnshire & Goole Hospitals NHS Trust	0.13	36	60
Northumbria Healthcare NHS Trust	0.12	45	66
Oldham NHS Trust	0.07	17	107
Peterborough Hospitals NHS Trust	0.06	12	112
Pinderfields & Pontefract Hospitals NHS Trust	0.16	52	41
Poole Hospitals NHS Trust	0.06	12	114
Preston Acute Hospitals NHS Trust	0.27	62	9
Princess Alexandra Hospital NHS Trust	0.16	33	43
Princess Royal Hospital NHS Trust	0.10	10	89
Queen Elizabeth Hospital NHS Trust	0.11	18	71
Queen Mary's Sidcup NHS Trust	0.22	30	19
Rochdale Healthcare NHS Trust	0.09	15	95
Rotherham General Hospitals NHS Trust	0.11	22	80
Royal Bournemouth & Christchurch Hospitals NHS Trust	0.06	15	113
Royal Cornwall Hospitals NHS Trust	0.21	55	24
Royal Devon & Exeter Healthcare NHS Trust	0.16	38	40
Royal Liverpool and Broadgreen Hospitals University NHS Trust	0.17	72	38
Royal Shrewsbury Hospitals NHS Trust	0.12	18	69
Royal United Hospital Bath NHS Trust	0.24	45	11
Royal Wolverhampton Hospitals NHS Trust	0.16	38	44
Salford Royal Hospitals NHS Trust	0.24	55	15
Salisbury Healthcare NHS Trust	0.12	25	70
Sandwell Healthcare NHS Trust	0.13	24	62
Scarborough & NE Yorkshire Healthcare NHS Trust	0.18	31	33
Sherwood Forest Hospitals NHS Trust	0.22	58	20
South Buckinghamshire NHS Trust	0.12	24	65
South Devon Healthcare NHS Trust	0.11	31	79
South Durham Health Care NHS Trust	0.05	11	118
South Manchester University Hospital's NHS Trust	0.09	30	94
South Tyneside Healthcare NHS Trust	0.04	7	122
South Warwickshire General Hospitals NHS Trust	0.13	19	57
Southend Hospital NHS Trust	0.13	33	59
Southport & Ormskirk Hospital NHS Trust	0.02	4	124
St Helen's & Knowsley Hospitals NHS Trust	0.08	28	99
Stockport NHS Trust	0.04	13	121
Surrey & Sussex Healthcare NHS Trust	0.12	28	68
Swindon & Marlborough NHS Trust	0.11	19	72
Tameside and Glossop Acute Services NHS Trust	0.22	26	23
Taunton & Somerset NHS Trust	0.08	19	106
Trafford Healthcare NHS Trust	0.04	7	123
United Lincolnshire Hospitals NHS Trust	0.15	72	48
Walsall Hospitals NHS Trust	0.07	15	110
West Dorset General Hospitals NHS Trust	0.08	10	100
West Hertfordshire Hospitals NHS Trust	0.28	77	6
West Middlesex University NHS Trust	0.24	32	14
West Suffolk Hospitals NHS Trust	0.19	40	27
Weston Area Health NHS Trust	0.27	25	8
Whipps Cross University Hospital NHS Trust	0.13	45	58
Whittington Hospital NHS Trust	0.18	27	32
Winchester & Eastleigh Healthcare NHS Trust	0.10	21	84
Wirral Hospital NHS Trust	0.08	28	103
Worcestershire Acute Hospitals NHS Trust	0.14	39	54
Worthing & Southlands Hospitals NHS Trust	0.11	21	76
Wrightington, Wigan & Leigh NHS Trust	0.09	27	97
York Health Services NHS Trust	0.07	27	109

* based on average daily number of occupied beds (all wards) in 2000/1

were above these control limits. Out of 124 general acute Trusts (figure 2), seven Trusts had rates that fell above the expected range, all of which are in southern England. For single specialty Trusts (figure 3), again only one had an

MRSA rate above the upper control limit.

As well as analysing trends between Trusts, trends within Trusts over time (the four quarters of the first year of the scheme) were analysed to detect significant linear

Figure 3 Number of MRSA bacteraemia in single specialty acute NHS Trust by bed-days, England: April 2001 to March 2002

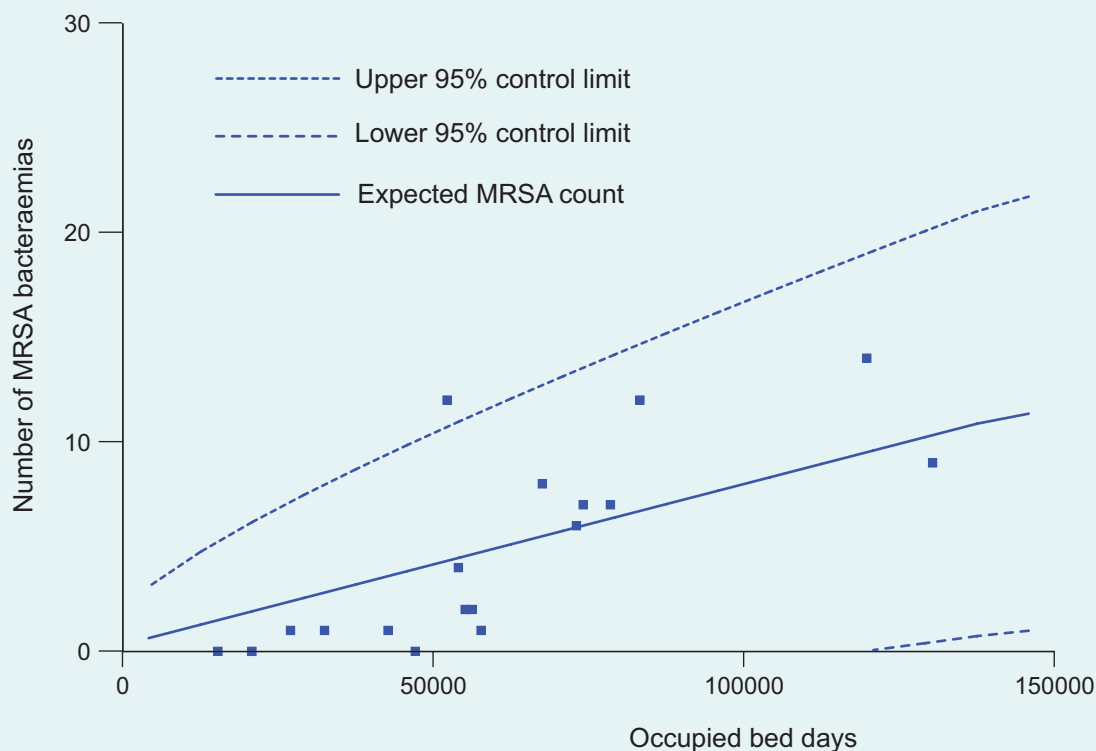


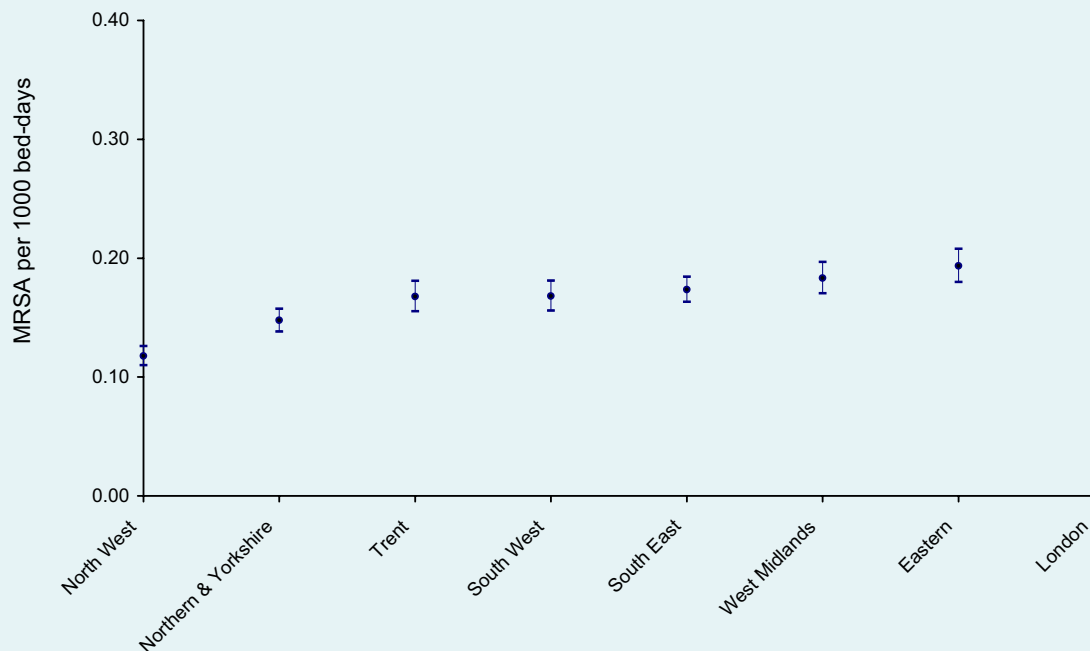
Table 3 MRSA bacteraemia rates by Trust category – single specialty Trusts: April 2001 to March 2002

Trust Name	MRSA per 1000 bed-days*	Number of MRSA bacteraemias	National ranking according to Trust category
Birmingham Children's Hospitals NHS Trust	0.09	7	6
Birmingham Women's Healthcare NHS Trust	0.04	2	12
Cardiothoracic Centre – Liverpool NHS Trust	0.07	4	8
Chorley & South Ribble NHS Trust	0.12	14	4
Christie Hospital NHS Trust	0.14	12	2
Clatterbridge Centre for Oncology NHS Trust	0.04	1	10
Great Ormond Street Hospital for Children NHS Trust	0.09	7	5
Liverpool Women's Hospital NHS Trust	0.00	0	16
Moorfields Eye Hospital NHS Trust	0.00	0	16
Nuffield Orthopaedic NHS Trust	0.02	1	14
Papworth Hospital NHS Trust	0.23	12	1
Robert Jones & Agnes Hunt Orthopaedic & District Hospital NHS Trust	0.02	1	15
Royal Brompton & Harefield NHS Trust	0.07	9	9
Royal Liverpool Children's NHS Trust	0.12	8	3
Royal Marsden Hospital NHS Trust	0.08	6	7
Royal National Hospital for Rheumatic Diseases NHS Trust	0.00	0	16
Royal National Orthopaedic Hospital NHS Trust	0.04	2	11
Royal Orthopaedic Hospital NHS Trust	0.03	1	13

* based on average daily number of occupied beds (all wards) in 2000/1

changes (although care should be taken in assessing trends based on data from only four points in time). Twenty-three Trusts showed a significant linear change in their MRSA rate, 14 showing a rise (with rates rising on average by between 1.3 and 2.5 times per quarter) and nine showing a

fall (with rates falling by a factor of 0.5 to 0.8 times per quarter). Two regions (Eastern and the South West) had no Trusts with significant changes; the other regions had between three and five Trusts with significant differences, both increases and decreases. One hundred and sixty-four

Figure 4 MRSA bacteraemia rates with 95% confidence intervals*, by acute NHS Trust, England: April 2001 to March 2002

* based on average daily number of occupied beds (all wards) in 2000/1

Trusts had no linear change in their MRSA rate. The figures for England as a whole, the individual regions, and the three Trust categories were also analysed to detect any linear changes over time, but none of these showed any significant changes.

Regional activity

It has been noted previously that these data on Trust rates are not straightforward indicators of the robustness of Trusts' infection control procedures, but should be used as the basis for further local investigations. Regional Offices of the Department of Health have put programmes in place for these further investigations, which are detailed below.

Eastern region is implementing a peer review process, in which the regional director of public health (RDPH), regional epidemiologist (RE), local consultant in communicable disease control (CCDC), and a nominated medical microbiologist visit each Trust in the region to discuss infection control issues. Notes of these meetings will form the basis of a continuing programme of progress reviews.

In the **London** region, the regional infection control nurse has embarked on a programme of Trust visits, reviewing the infection control service as a whole in Trusts with rates at both extremes. The chief executives are then informed of the findings and any recommendations for action. Repeat visits are scheduled for Trusts with higher rates. Seven acute Trusts have been reviewed to date. The reviews encompass the composition and role of the infection control team, the hospital environment and external factors that may influence the rate. These visits also serve to update Trusts on successful interventions noted in other Trusts.

In the former **Northern and Yorkshire** region, the RDPH and RE, together with an infection control nurse, undertook visits to the three Trusts reporting the highest MRSA bacteraemia rates. The meeting involved the chief executive, medical director, infection control doctor, and infection control nurse from the Trust. Each of these Trusts had reviewed their data in detail, identified areas where action needed to be taken and have developed action plans.

In addition, an MRSA audit tool is being developed for use in all Trusts in the former Northern and Yorkshire NHS Region. A report with examples of good practice and recommendations for change at Trust and regional levels will result. Work is also in progress to determine where statistical process control charts provide an appropriate methodology for feeding back data at regional, Trust and ward/unit level.

The **North West** region has established a Regional Group to review the findings from mandatory bacteraemia reporting and is developing benchmark standards for reporting.

The rates for Trusts in the **South East** were reviewed by the RDPH and REs. Areas of concern have been discussed with relevant Trusts.

All Trusts in the **South West** have been active in their efforts to reduce hospital-acquired infection. Examples of specific activities undertaken by Trusts in relation to MRSA bacteraemia surveillance are: feedback of data to clinical departments within the Trust to raise awareness, identification of clinical areas with higher numbers of MRSA bacteraemias so that appropriate action can be targeted, and ongoing work to improve the management of intravascular devices through audit and policy development.

In **Trent** there have been discussions over the rates and general infection control service with the Trust chief

executives and members of the infection control teams in the four Trusts with the highest MRSA bacteraemia rates. Particular issues arising from these discussions are being addressed. In addition, there has been a 'Feedback Workshop' for all the acute Trust chief executives, infection control doctors and infection control nurses in the region.

Attention in the **West Midlands** has been concentrated on the Trust with the highest MRSA bacteraemia rate in the country. Following a meeting of the RDPH, the Trust's chief executive and ICD, a package of measures designed to improve understanding of the problem, enhancements to the infection control team, and an educational programme for clinical staff has been agreed. The educational programme, embedded in the clinical governance infrastructure, has started.

Discussion

The results from the mandatory surveillance scheme provide an estimate of the burden of MRSA bacteraemia in England for the first year of the scheme. The overall MRSA bacteraemia rate across all acute NHS Trusts in England and Wales between April 2001 and March 2002 was 0.17 per 1000 bed-days, rates ranging from 0 to 0.66 across acute NHS Trusts. Rates tended to be higher in the south and east of England (when compared to the north and west), and in specialist Trusts, largely teaching hospitals and tertiary referral centres, followed by general acute (district general hospitals) Trusts. Some single specialty Trusts did not report any MRSA bacteraemias in this period. It is important to remember that these results only cover a relatively short time period, and that various factors may influence MRSA rates within individual Trusts (see appendix 2).

The use of control charts is intended to display the results of the category analyses in a clearer way, and to make identification of statistical outliers easier. A fundamental assumption of statistical process control theory is that items within categories are similar enough to be viewed as being part of a unified system, which may not be the case for NHS Trusts^{6,7}. Observing variations in MRSA cases in each Trust over time will help to test this hypothesis and potentially inform further re-categorisation.

The quarter-on-quarter analysis of individual Trusts' data to detect significant linear change in their MRSA rate over time identified 14 Trusts as having significant rises and nine as having significant falls. Care should, however, be exercised, as a significant increase (or decrease) in a Trust's rate may not be due to a large change in the absolute number of MRSA bacteraemias within that Trust. For example, a single specialty Trust with no MRSA bacteraemias for the first three quarters of the year and a single case in the last quarter would still register a significant increase in the MRSA rate.

The Scottish Centre for Infection and Environmental Health (SCIEH) has recently published a first report on MRSA in 18 acute NHS Trusts in Scotland, covering January to December 2001⁸. Recorded MRSA bacteraemia rates ranged from 0.0 to 0.25 per 1000 bed-days. Interestingly, this is similar to the range of MRSA bacteraemia rates in the neighbouring English regions, where the range is 0 to 0.27 per 1000 bed-days in the North West and 0.04 to 0.38 per 1000 bed-days in Northern and Yorkshire (where the highest MRSA rate is exceptionally high for the region: the second

highest rate is 0.26 per 1000 bed-days). Overall though, the Scottish MRSA rates do not cover such a wide range as the English rates (0.0 to 0.25 per 1000 bed-days in Scotland compared to 0.0 to 0.66 per 1000 bed-days in England). In contrast to the situation in England, there was little evidence of marked differences between university hospitals and general acute hospitals in Scottish Trusts.

Few other comparable publications reporting the incidence of MRSA bacteraemias according to bed occupancy exist. One study from France reported an incidence of 0.56 MRSA per 1000 patient-days (range 0.01-4.4) in 1998, although this was in a sample of French hospitals rather than the whole country⁹.

Acknowledgements

We would like to thank Trust medical microbiologists, infection control teams and CDSC regional staff for their efforts in collecting and collating these data and the PHLS Statistics Unit for their expert advice. The Healthcare-Associated Infection Surveillance Steering Group was responsible for developing the dataset for this mandatory surveillance scheme.

This report was prepared by the Healthcare-Associated Infection and Antimicrobial Resistance Division of the Communicable Disease Surveillance Centre on behalf of the Department of Health.

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Appendix 1: Regional data

Figure 1 MRSA bacteraemia rates with 95% confidence intervals*, by acute NHS Trust, Eastern region: April 2001 to March 2002

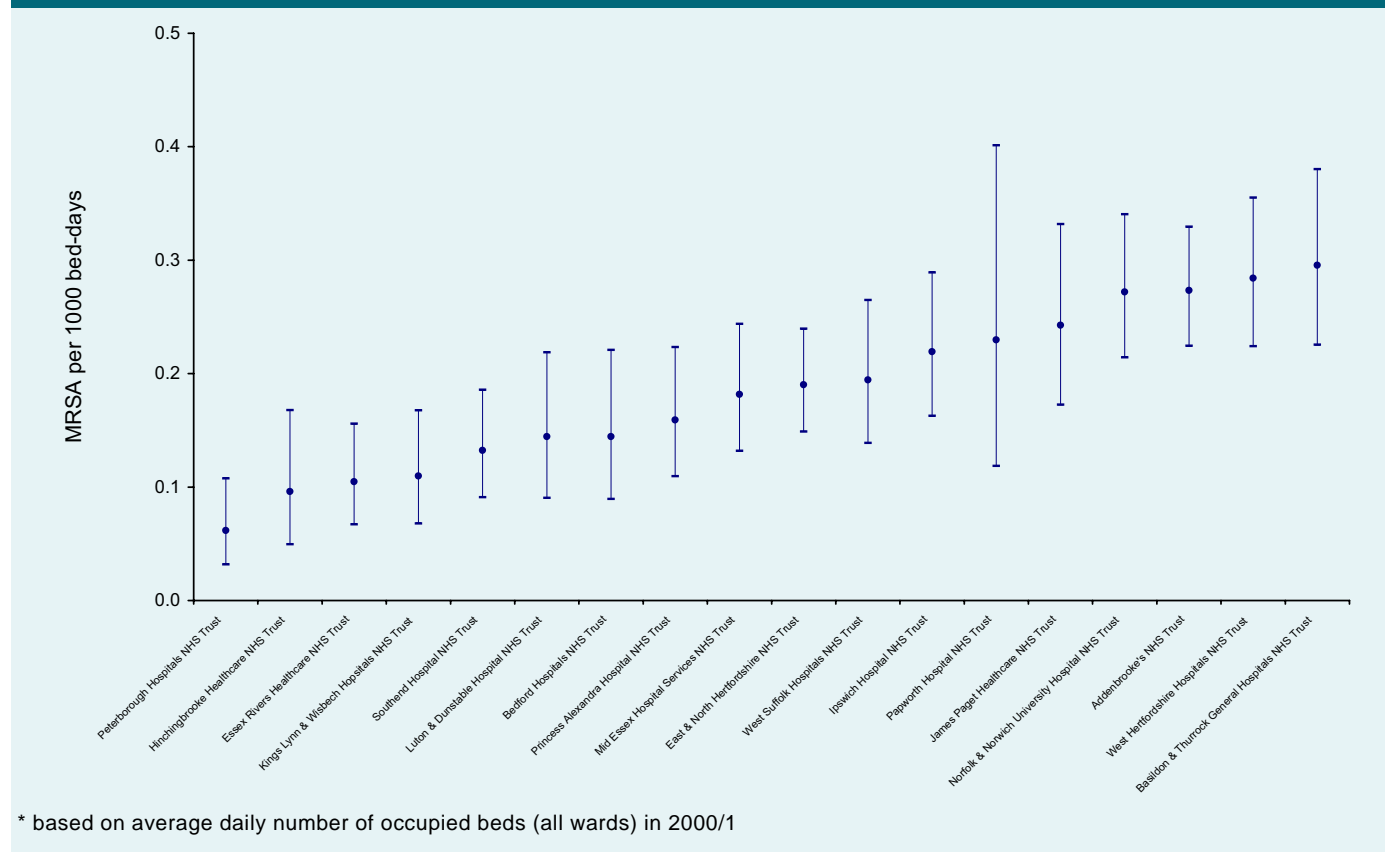


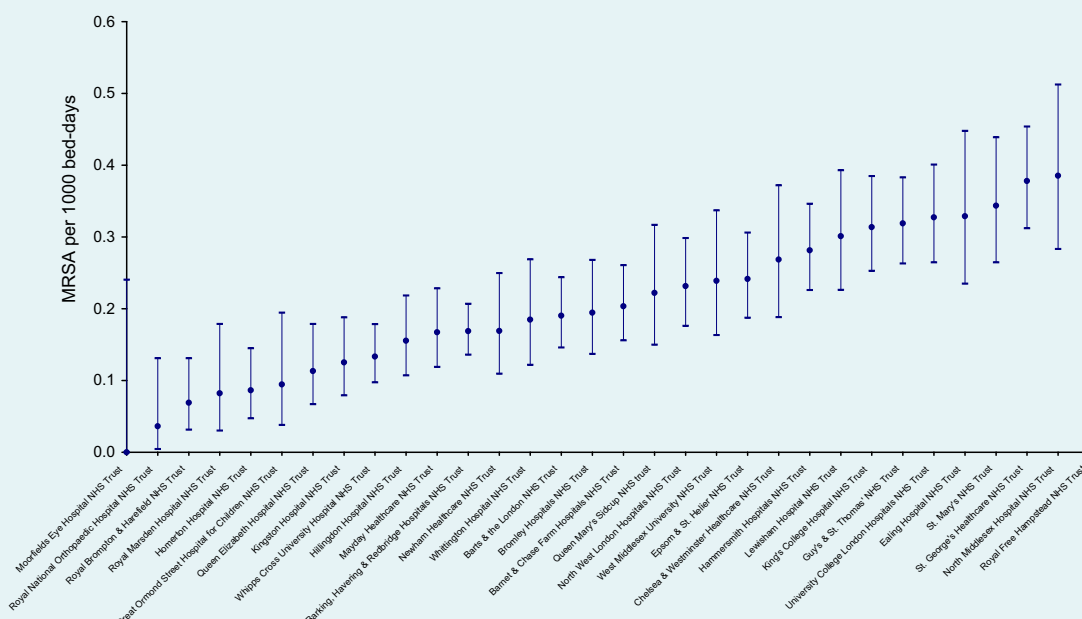
Table 1 MRSA bacteraemia rates by acute NHS Trust, Eastern region: April 2001 to March 2002

Trust Name	Trust Category	MRSA per 1000 bed-days*	National ranking according to Trust category
Addenbrooke's NHS Trust	specialist	0.27	16
Basildon & Thurrock General Hospitals NHS Trust	general acute	0.30	4
Bedford Hospitals NHS Trust	general acute	0.14	52
East & North Hertfordshire NHS Trust	general acute	0.19	29
Essex Rivers Healthcare NHS Trust	general acute	0.10	81
Hinchingbrooke Healthcare NHS Trust	general acute	0.10	88
Ipswich Hospital NHS Trust	general acute	0.22	21
James Paget Healthcare NHS Trust	general acute	0.24	12
Kings Lynn & Wisbech Hospitals NHS Trust	general acute	0.11	77
Luton & Dunstable Hospital NHS Trust	general acute	0.14	53
Mid Essex Hospital Services NHS Trust	general acute	0.18	34
Norfolk & Norwich University Hospital NHS Trust	general acute	0.27	7
Papworth Hospital NHS trust	single specialty	0.23	1
Peterborough Hospitals NHS Trust	general acute	0.06	112
Princess Alexandra Hospital NHS Trust	general acute	0.16	43
Southend Hospital NHS Trust	general acute	0.13	59
West Hertfordshire Hospitals NHS Trust	general acute	0.28	6
West Suffolk Hospitals NHS Trust	general acute	0.19	27
Eastern Region Total	–	0.19	–

* based on average daily number of occupied beds (all wards) in 2000/1

higher ranking = higher rate

Figure 2 MRSA bacteraemia rates with 95% confidence intervals*, by acute NHS Trust, London region: April 2001 to March 2002



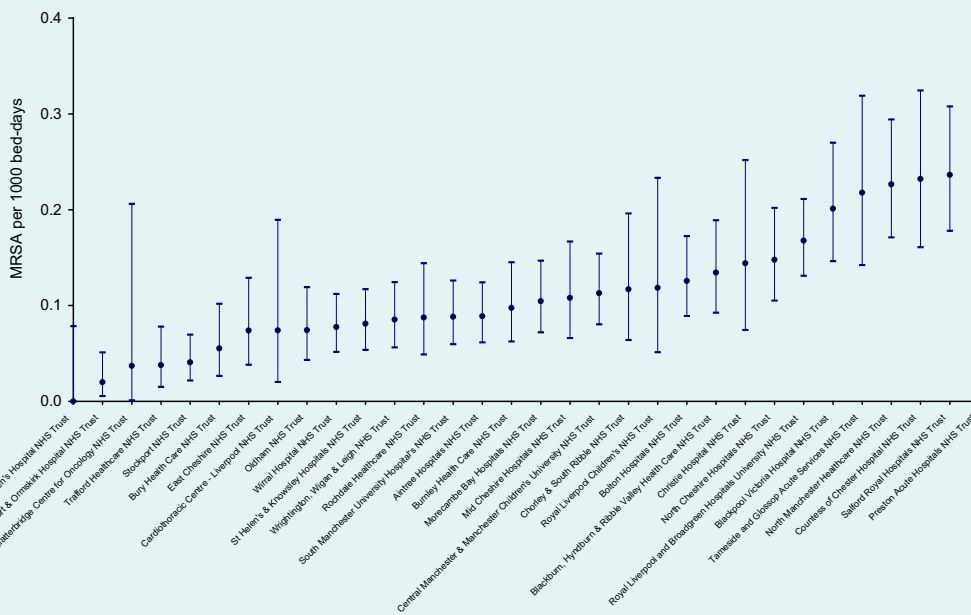
* based on average daily number of occupied beds (all wards) in 2000/1

Table 2 MRSA bacteraemia rates by acute NHS Trust, London region: April 2001 to March 2002

Trust Name	Trust Category	MRSA per 1000 bed-days*	National ranking according to Trust category
Barking, Havering & Redbridge Hospitals NHS Trust	general acute	0.17	37
Barnet & Chase Farm Hospitals NHS Trust	general acute	0.20	25
Barts & the London NHS Trust	specialist	0.19	32
Bromley Hospitals NHS Trust	general acute	0.19	28
Chelsea & Westminster Healthcare NHS Trust	specialist	0.27	17
Ealing Hospital NHS Trust	general acute	0.33	2
Epsom & St. Helier NHS Trust	general acute	0.24	13
Great Ormond Street Hospital for Children NHS Trust	single specialty	0.09	5
Guy's & St. Thomas' NHS Trust	specialist	0.32	9
Hammersmith Hospitals NHS Trust	specialist	0.28	15
Hillingdon Hospital NHS Trust	general acute	0.16	45
Homerton Hospital NHS Trust	general acute	0.09	96
King's College Hospital NHS Trust	specialist	0.31	11
Kingston Hospital NHS Trust	general acute	0.13	64
Lewisham Hospital NHS Trust	general acute	0.30	3
Mayday Healthcare NHS Trust	general acute	0.17	39
Moorfields Eye Hospital NHS Trust	single specialty	0.00	16
Newham Healthcare NHS Trust	general acute	0.17	36
North Middlesex Hospital NHS Trust	general acute	0.39	1
North West London Hospitals NHS Trust	specialist	0.23	23
Queen Elizabeth Hospital NHS Trust	general acute	0.11	71
Queen Mary's Sidcup NHS trust	general acute	0.22	19
Royal Brompton & Harefield NHS Trust	single specialty	0.07	9
Royal Free Hampstead NHS Trust	specialist	0.41	2
Royal Marsden Hospital NHS Trust	single specialty	0.08	7
Royal National Orthopaedic Hospital NHS Trust	single specialty	0.04	11
St. George's Healthcare NHS Trust	specialist	0.38	4
St. Mary's NHS Trust	specialist	0.34	5
University College London Hospitals NHS Trust	specialist	0.33	6
West Middlesex University NHS Trust	general acute	0.24	14
Whipps Cross University Hospital NHS Trust	general acute	0.13	58
Whittington Hospital NHS Trust	general acute	0.18	32
London Region Total	—	0.23	—

* based on average daily number of occupied beds (all wards) in 2000/1
higher ranking = higher rate

Figure 3 MRSA bacteraemia rates with 95% confidence intervals*, by acute NHS Trust, North West region: April 2001 to March 2002



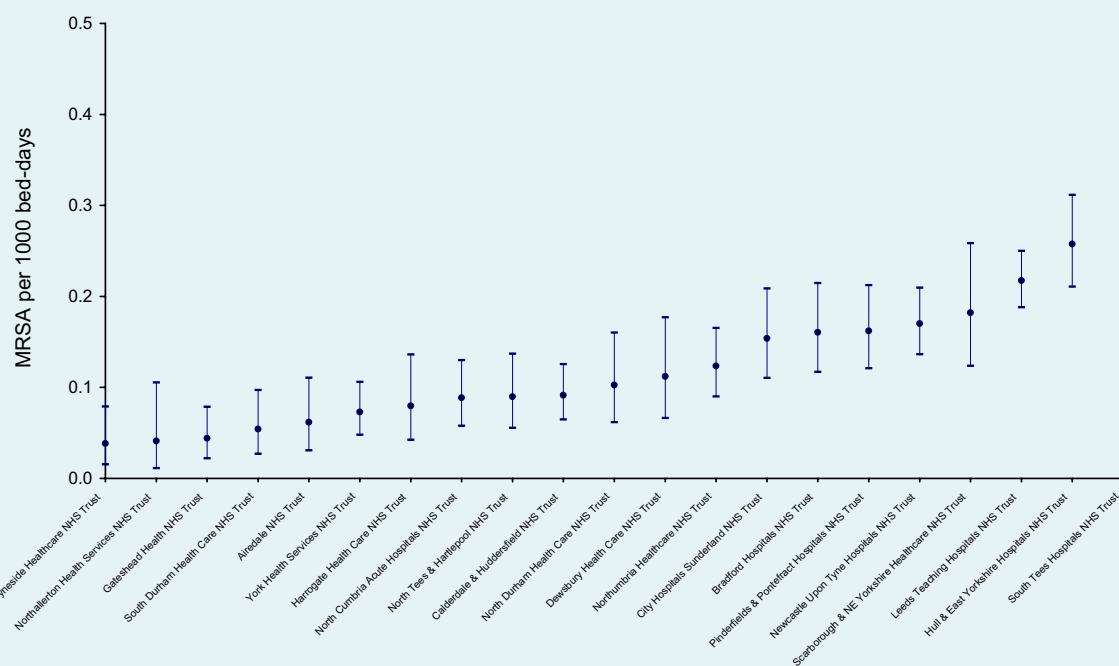
* based on average daily number of occupied beds (all wards) in 2000/1

Table 3 MRSA bacteraemia rates by acute NHS Trust, North West region: April 2001 to March 2002

Trust Name	Trust Category	MRSA per 1000 bed-days*	National ranking according to Trust category†
Aintree Hospitals NHS Trust	general acute	0.09	92
Blackburn, Hyndburn & Ribble Valley Health Care NHS Trust	general acute	0.13	56
Blackpool Victoria Hospital NHS Trust	general acute	0.20	26
Bolton Hospitals NHS Trust	general acute	0.13	63
Burnley Health Care NHS Trust	general acute	0.10	87
Bury Health Care NHS Trust	general acute	0.06	116
Cardiothoracic Centre – Liverpool NHS Trust	single specialty	0.07	8
Central Manchester & Manchester Children's University NHS Trust	specialist	0.11	39
Chorley & South Ribble NHS Trust	single specialty	0.12	4
Christie Hospital NHS Trust	single specialty	0.14	2
Clatterbridge Centre for Oncology NHS Trust	single specialty	0.04	10
Countess of Chester Hospital NHS Trust	general acute	0.23	16
East Cheshire NHS Trust	general acute	0.07	108
Liverpool Women's Hospital NHS Trust	single specialty	0.00	16
Mid Cheshire Hospitals NHS Trust	general acute	0.11	78
Morecambe Bay Hospitals NHS Trust	general acute	0.10	82
North Cheshire Hospitals NHS Trust	general acute	0.15	49
North Manchester Healthcare NHS Trust	general acute	0.23	17
Oldham NHS Trust	general acute	0.07	107
Preston Acute Hospitals NHS Trust	general acute	0.27	9
Rochdale Healthcare NHS Trust	general acute	0.09	95
Royal Liverpool and Broadgreen Hospitals University NHS Trust	general acute	0.17	38
Royal Liverpool Children's NHS Trust	single specialty	0.12	3
Salford Royal Hospitals NHS Trust	general acute	0.24	15
South Manchester University Hospital's NHS Trust	general acute	0.09	94
Southport & Ormskirk Hospital NHS Trust	general acute	0.02	124
St Helen's & Knowsley Hospitals NHS Trust	general acute	0.08	99
Stockport NHS Trust	general acute	0.04	121
Tameside and Glossop Acute Services NHS Trust	general acute	0.22	23
Trafford Healthcare NHS Trust	general acute	0.04	123
Wirral Hospital NHS Trust	general acute	0.08	103
Wrightington, Wigan & Leigh NHS Trust	general acute	0.09	97
North West Region Total	–	0.12	–

* based on average daily number of occupied beds (all wards) in 2000/1
 † higher ranking = higher rate

Figure 4 MRSA bacteraemia rates with 95% confidence intervals*, by acute NHS Trust, Northern and Yorkshire region: April 2001 to March 2002



* based on average daily number of occupied beds (all wards) in 2000/1

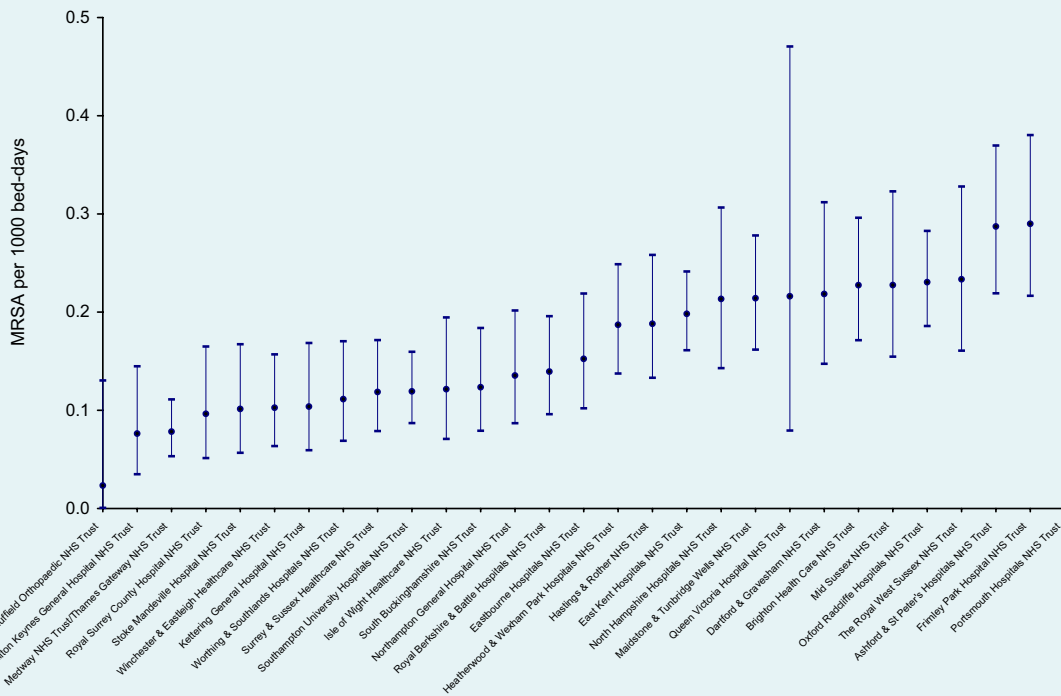
Table 4 MRSA bacteraemia rates by acute NHS Trust, Northern and Yorkshire region: April 2001 to March 2002

Trust Name	Trust Category	MRSA per 1000 bed-days*	National ranking according to Trust category
Airedale NHS Trust	general acute	0.06	111
Bradford Hospitals NHS Trust	general acute	0.16	42
Calderdale & Huddersfield NHS Trust	general acute	0.09	90
City Hospitals Sunderland NHS Trust	general acute	0.15	46
Dewsbury Health Care NHS Trust	general acute	0.11	75
Gateshead Health NHS Trust	general acute	0.04	119
Harrogate Health Care NHS Trust	general acute	0.08	102
Hull & East Yorkshire Hospitals NHS Trust	specialist	0.26	18
Leeds Teaching Hospitals NHS Trust	specialist	0.22	27
Newcastle Upon Tyne Hospitals NHS Trust	specialist	0.17	34
North Cumbria Acute Hospitals NHS Trust	general acute	0.09	93
North Durham Health Care NHS Trust	general acute	0.10	85
North Tees & Hartlepool NHS Trust	general acute	0.09	91
Northallerton Health Services NHS Trust	general acute	0.04	120
Northumbria Healthcare NHS Trust	general acute	0.12	66
Pinderfields & Pontefract Hospitals NHS Trust	general acute	0.16	41
Scarborough & NE Yorkshire Healthcare NHS Trust	general acute	0.18	33
South Durham Health Care NHS Trust	general acute	0.05	118
South Tees Hospitals NHS Trust	specialist	0.38	3
South Tyneside Healthcare NHS Trust	general acute	0.04	122
York Health Services NHS Trust	general acute	0.07	109
Northern and Yorkshire Region Total	–	0.15	–

* based on average daily number of occupied beds (all wards) in 2000/1

higher ranking = higher rate

Figure 5 MRSA bacteraemia rates with 95% confidence intervals*, by acute NHS Trust, South East region: April 2001 to March 2002



* based on average daily number of occupied beds (all wards) in 2000/1

Table 5 MRSA bacteraemia rates by acute NHS Trust, South East region: April 2001 to March 2002

Trust Name	Trust Category	MRSA per 1000 bed-days*	National ranking according to Trust category
Ashford & St Peter's Hospitals NHS Trust	specialist	0.29	14
Brighton Health Care NHS Trust	specialist	0.23	26
Dartford & Gravesham NHS Trust	general acute	0.22	22
East Kent Hospitals NHS Trust	specialist	0.20	31
Eastbourne Hospitals NHS Trust	specialist	0.15	35
Frimley Park Hospital NHS Trust	general acute	0.29	5
Hastings & Rother NHS Trust	general acute	0.19	30
Heatherwood & Wexham Park Hospitals NHS Trust	general acute	0.19	31
Isle of Wight Healthcare NHS Trust	general acute	0.12	67
Kettering General Hospital NHS Trust	general acute	0.10	83
Maidstone & Tunbridge Wells NHS Trust	specialist	0.21	29
Medway NHS Trust/Thames Gateway NHS Trust	specialist	0.08	43
Mid Sussex NHS Trust	specialist	0.23	25
Milton Keynes General Hospital NHS Trust	general acute	0.08	105
North Hampshire Hospitals NHS Trust	specialist	0.21	30
Northampton General Hospital NHS Trust	general acute	0.14	55
Nuffield Orthopaedic NHS Trust	single specialty	0.02	14
Oxford Radcliffe Hospitals NHS Trust	specialist	0.23	24
Portsmouth Hospitals NHS Trust	specialist	0.32	7
Queen Victoria Hospital NHS Trust	specialist	0.22	28
Royal Berkshire & Battle Hospitals NHS Trust	specialist	0.14	37
Royal Surrey County Hospital NHS Trust	specialist	0.10	42
South Buckinghamshire NHS Trust	general acute	0.12	65
Southampton University Hospitals NHS Trust	specialist	0.12	38
Stoke Mandeville Hospital NHS Trust	specialist	0.10	41
Surrey & Sussex Healthcare NHS Trust	general acute	0.12	68
The Royal West Sussex NHS Trust	specialist	0.23	22
Winchester & Eastleigh Healthcare NHS Trust	general acute	0.10	84
Worthing & Southlands Hospitals NHS Trust	general acute	0.11	76
South East Region total	—	0.17	—

* based on average daily number of occupied beds (all wards) in 2000/1

† Medway Trust/Thames Gateway NHS Trust are two Trusts
higher ranking = higher rate

Figure 6 MRSA bacteraemia rates with 95% confidence intervals*, by acute NHS Trust, South West region: April 2001 to March 2002

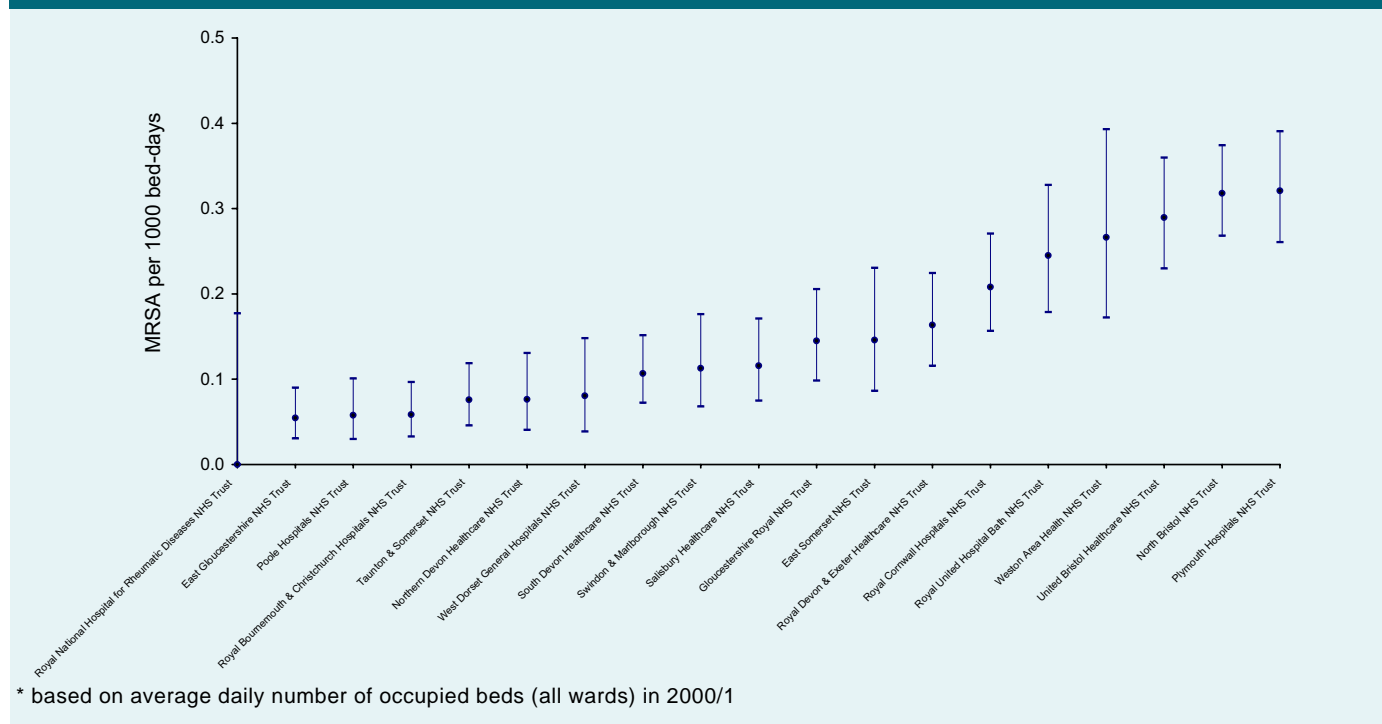


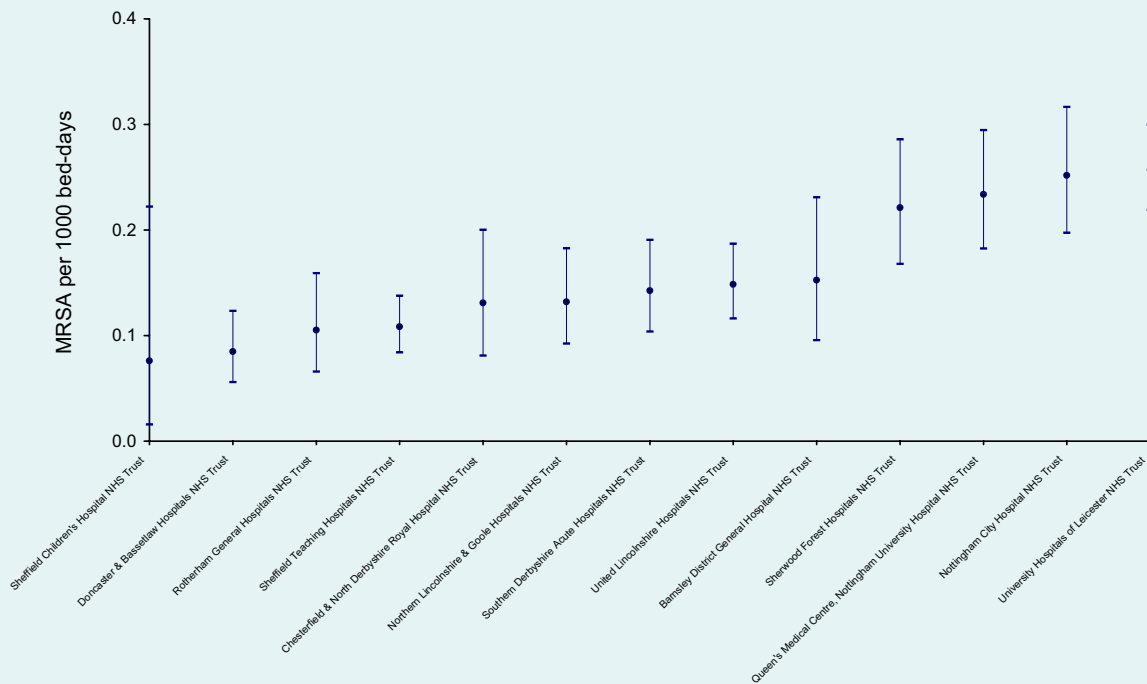
Table 6 MRSA bacteraemia rates by acute NHS Trust, South West region: April 2001 to March 2002

Trust Name	Trust Category	MRSA per 1000 bed-days*	National ranking according to Trust category
East Gloucestershire NHS Trust	general acute	0.05	117
East Somerset NHS Trust	general acute	0.15	50
Gloucestershire Royal NHS Trust	general acute	0.14	51
North Bristol NHS Trust	specialist	0.32	10
Northern Devon Healthcare NHS Trust	general acute	0.08	104
Plymouth Hospitals NHS Trust	specialist	0.32	8
Poole Hospitals NHS Trust	general acute	0.06	114
Royal Bournemouth & Christchurch Hospitals NHS Trust	general acute	0.06	113
Royal Cornwall Hospitals NHS Trust	general acute	0.21	24
Royal Devon & Exeter Healthcare NHS Trust	general acute	0.16	40
Royal National Hospital for Rheumatic Diseases NHS Trust	single specialty	0.00	16
Royal United Hospital Bath NHS Trust	general acute	0.24	11
Salisbury Healthcare NHS Trust	general acute	0.12	70
South Devon Healthcare NHS Trust	general acute	0.11	79
Swindon & Marlborough NHS Trust	general acute	0.11	72
Taunton & Somerset NHS Trust	general acute	0.08	106
United Bristol Healthcare NHS Trust	specialist	0.29	13
West Dorset General Hospitals NHS Trust	general acute	0.08	100
Weston Area Health NHS Trust	general acute	0.27	8
South West Region Total	–	0.17	–

* based on average daily number of occupied beds (all wards) in 2000/1

higher ranking = higher rate

Figure 7 MRSA bacteraemia rates with 95% confidence intervals*, by acute NHS Trust, Trent region: April 2001 to March 2002



* based on average daily number of occupied beds (all wards) in 2000/1

Table 7 MRSA bacteraemia rates by acute NHS Trust, Trent region: April 2001 to March 2002

Trust Name	Trust Category	MRSA per 1000 bed-days*	National ranking according to Trust category
Barnsley District General Hospital NHS Trust	general acute	0.15	47
Chesterfield & North Derbyshire Royal Hospital NHS Trust	general acute	0.13	61
Doncaster & Bassetlaw Hospitals NHS Trust	general acute	0.08	98
Northern Lincolnshire & Goole Hospitals NHS Trust	general acute	0.13	60
Nottingham City Hospital NHS Trust	specialist	0.25	20
Queen's Medical Centre, Nottingham University Hospital NHS Trust	specialist	0.23	21
Rotherham General Hospitals NHS Trust	general acute	0.11	80
Sheffield Children's Hospital NHS Trust	specialist	0.08	44
Sheffield Teaching Hospitals NHS Trust	specialist	0.11	40
Sherwood Forest Hospitals NHS Trust	general acute	0.22	20
Southern Derbyshire Acute Hospitals NHS Trust	specialist	0.14	36
United Lincolnshire Hospitals NHS Trust	general acute	0.15	48
University Hospitals of Leicester NHS Trust	specialist	0.26	19
Trent Region Total	—	0.17	—

* based on average daily number of occupied beds (all wards) in 2000/1
higher ranking = higher rate

Figure 8 MRSA bacteraemia rates with 95% confidence intervals*, by acute NHS Trust, West Midlands region: April 2001 to March 2002

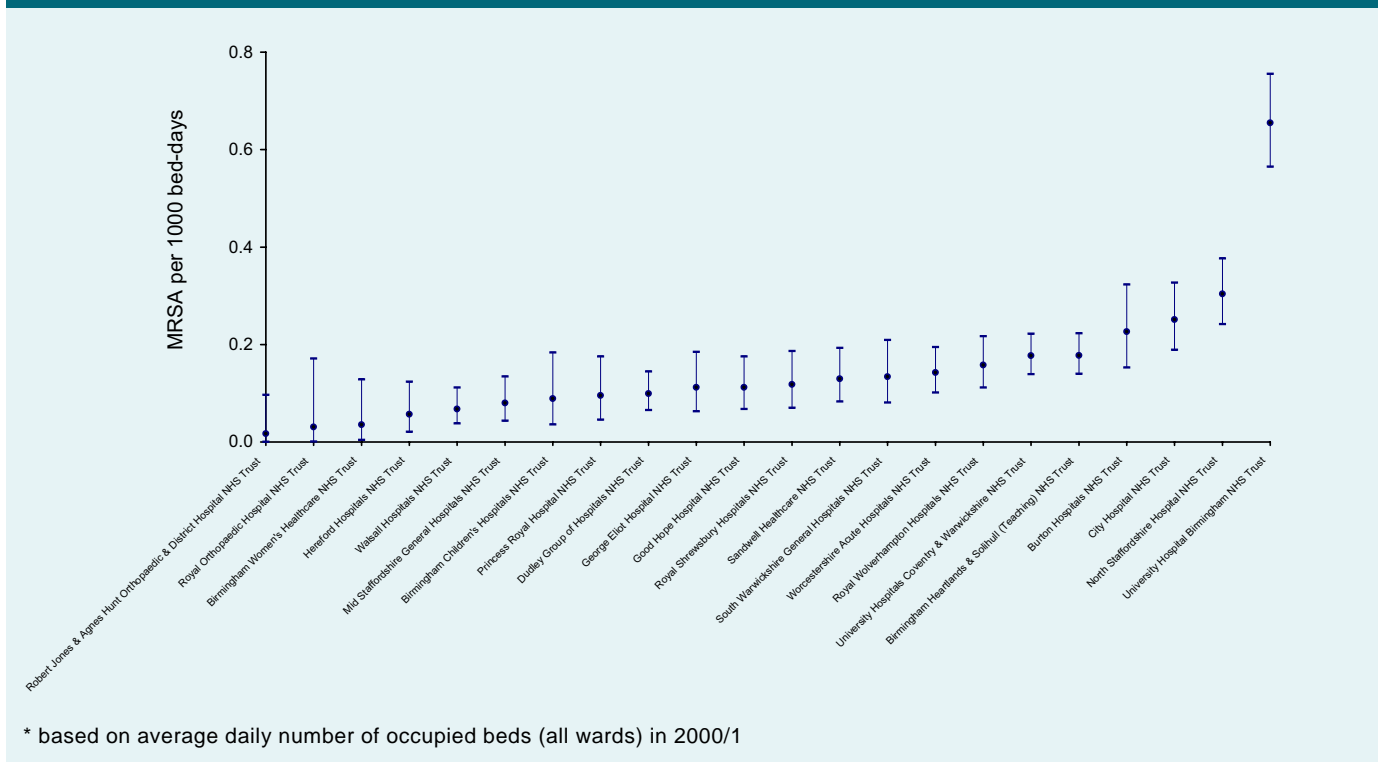


Table 8 MRSA bacteraemia rates by acute NHS Trust, West Midlands region: April 2001 to March 2002

Trust Name	Trust Category	MRSA per 1000 bed-days*	National ranking according to Trust category
Birmingham Children's Hospitals NHS Trust	single specialty	0.09	6
Birmingham Heartlands & Solihull (Teaching) NHS Trust	general acute	0.18	35
Birmingham Women's Healthcare NHS Trust	single specialty	0.04	12
Burton Hospitals NHS Trust	general acute	0.23	18
City Hospital NHS Trust	general acute	0.25	10
Dudley Group of Hospitals NHS Trust	general acute	0.10	86
George Eliot Hospital NHS Trust	general acute	0.11	74
Good Hope Hospital NHS Trust	general acute	0.11	73
Hereford Hospitals NHS Trust	general acute	0.06	115
Mid Staffordshire General Hospitals NHS Trust	general acute	0.08	101
North Staffordshire Hospital NHS Trust	specialist	0.30	12
Princess Royal Hospital NHS Trust	general acute	0.10	89
Robert Jones & Agnes Hunt Orthopaedic & District Hospital NHS Trust	single specialty	0.02	15
Royal Orthopaedic Hospital NHS Trust	single specialty	0.03	13
Royal Shrewsbury Hospitals NHS Trust	general acute	0.12	69
Royal Wolverhampton Hospitals NHS Trust	general acute	0.16	44
Sandwell Healthcare NHS Trust	general acute	0.13	62
South Warwickshire General Hospitals NHS Trust	general acute	0.13	57
University Hospital Birmingham NHS Trust	specialist	0.66	1
University Hospitals Coventry & Warwickshire NHS Trust	specialist	0.18	33
Walsall Hospitals NHS Trust	general acute	0.07	110
Worcestershire Acute Hospitals NHS Trust	general acute	0.14	54
West Midlands total	-	0.18	-

* based on average daily number of occupied beds (all wards) in 2000/1

higher ranking = higher rate

Appendix 2: Interpretation of the data

The results from the first year of the mandatory reporting scheme need to be interpreted with care as:

- These are early figures from a short period of time.
- The figures for individual Trusts reflect the burden of serious infections associated with MRSA (bacteraemia or blood stream infection) and not all MRSA infection or carriage.
- The MRSA bacteraemia infections reported by acute Trusts were not necessarily acquired in those Trusts. There is much patient transfer between hospitals, such that a patient requiring specialist care may be transferred to a Trust with a specialist unit for their particular condition. When their care is complete, they may then return to the originating hospital. In this way Trusts may import MRSA from other hospital Trusts or from the community.
- Not all acute Trusts are the same. Some have specialist units that receive referrals from other acute Trusts (eg renal or cancer units), while others include units that in other places form part of other types of Trust, such as community, or mental health Trusts. (Non-acute Trusts are not included in the mandatory reporting scheme). This means that it is not valid to compare one hospital with another. This effect can be partly overcome by categorising Trusts as specialist, general acute, or single specialty, but this will not overcome all these difficulties. This requires more detailed local analyses incorporating information on risk factors and case mix.
- These differences in the make-up of different Trusts also have an effect on their MRSA rate. A Trust that has a high preponderance of units with more patients vulnerable to MRSA, such as specialist surgical units, is quite likely to experience a higher rate than a Trust that has a higher proportion of lower risk units, such as maternity or paediatric wards, where patients are unlikely to experience MRSA bacteraemia. Thus, although a Trust may have a high rate, this does not necessarily reflect an infection control problem in the Trust. Rather, the rates, particularly if high, should form the basis of further investigation. In addition, some acute NHS Trusts still include community-type beds (such as long-term care of the elderly), which elsewhere form part of Community Trusts, not included in this mandatory surveillance. In this instance, the community-type beds will dilute the MRSA rate from the acute beds.
- The bed occupancy figures used to derive the MRSA bacteraemia rate are from an earlier period than the MRSA data. Those used for this report are the latest KH03 figures that are available, which cover the period April 2000 to March 2001. This disparity between the period for which MRSA figures were collected and that for which the bed occupancy figures were available will have an effect on a Trust's activity if there has been a significant change in activity in the Trust. This may occur when there has been a merger of Trusts.
- KH03 denominator figures apply only to overnight admissions. Consequently MRSA bacteraemias in patients who are not admitted overnight may make a Trust's figures look falsely high, as these patients will feature in the numerator but not in the denominator. This may apply to certain types of patients, such as those on renal units.